[0024] The signal processing means **204** measure heart rate from signals received from the outer and inner structure, and from the signal processing means **204** a measured signal can then be supplied in a wireless or wired transmission to a computer, for example. The signal processing means **204** can be implemented using separate logic components or one or more ASIC circuits (Application Specific Integrated Circuit), for example.

[0025] Without the connection established via the skin and the signal processing means **204**, there is no galvanic contact between the electrically conductive outer structure **200** and inner structure **210**, but they are electrically isolated or separated from one another by a weakly conductive material (having an impedance greater than the impedance between the skin and the electrodes). They may be separated by plastic or some other electrically isolating or weakly conductive material of the wristband **104** and the measuring unit **102**. In addition to or instead of the electrode **108** that is in the inner structure **210**, under the measuring unit **102**, the measuring device **100** may comprise electrode **214** that belongs to the inner structure **210** coupled to the signal processing means through a wire that also belongs to the inner structure **210**. If electrode **108**, coupled to the signal processing means **204** of the measuring unit **102**, is used, electrode **214** may be coupled to electrode **108** by the wire **212**. Electrode **214** reduces contact impedance between the hand and the measuring device.

[0026] **FIG. 2B** illustrates the same implementation alternative as **FIG. 2A**. In the disclosed solution at least part of the electrically conductive outer structure **200** meant for contact with the other hand is located, as indicated by its name, on the outer surface **250** of the measuring device **100**. The part of the electrically conductive outer structure **200** on the outer surface **250** of the measuring device may form one or more electrodes. Examples of these are electrode **106** and electrode **110** (not shown in **FIG. 2B**). The outer surface **250** may be considered to refer to the entire surface of the measuring device **100**, apart from the surface that comes into contact with the hand to which the device is attached. Similarly, at least part of the electrically conductive inner structure meant for contact with the hand to which the device is attached is located, as indicated by its name, on the inner surface **252** of the measuring device, the inner surface referring to the measuring device **100** surface that is in contact with the skin of the hand to which the device is attached. The part of the electrically conductive inner structure is electrode **214** (and/or electrode **108**, which is not shown in **FIG. 2B**), for example.

[0027] **FIG. 3A** shows one of many methods of implementing an electrically conductive structure. According to this alternative, the entire electrically conductive outer structure **200** is arranged on the outer surface **250** of the annular measuring device **100** in the form of a semi-circle, which allows the electrically conductive outer structure **200** as a whole to function as an electrode for the user's other hand **152**. In the disclosed solution fingers of the other hand **152** are used for taking a pinch grip of the measuring device **100** such that the hand to which the device is attached is left between the fingers, for example the forefinger **154** and the thumb **156**. The forefinger **156**, for example, touches one end of the electrically conductive outer structure representing electrode **110**, while the thumb touches the other end of the electrically conductive outer structure representing electrode **106**.

[0028] The electrically conductive, semi-circular outer structure **200** can be arranged on the outer surface **250** of the measuring device also in the manner shown in **FIG. 3B**. In this solution the electrically conductive outer structure **200** is not on the measuring unit **102** at all, but entirely on the wristband, which is why there is no need to touch the measuring unit **102** with the fingers of the other hand. The display on the measuring unit **102** of the measuring device **100** can thus be viewed without the other hand disturbing visibility. Instead of a semi-circle, the electrically conductive outer structure **200** may be arranged in the form of a longer portion on the outer surface **250** of the measuring device **100**. An electrically conductive structure **200** slightly smaller than a semi-circle is also possible, but according to the disclosed solution it must be possible to take a pinch grip of the measuring device **100** with the fingers of the other hand so that the hand to which the device is attached is left between the fingers that touch the electrically conductive outer structure **200**, and the contact force applied through the fingers on parts of the electrically conductive outer structure **200** presses these parts towards each other. This kind of situation appears when the electrically conductive outer structure **200** on the measuring device **100** extends to opposite sides of the hand to which the device is attached and when at least portions of the structure that are on opposite sides of the hand to which the measuring device **100** is attached are arranged on the outer surface of the measuring device.

[0029] **FIG. 4A** shows one of many methods of implementing the electrically conductive structure. In this solution the electrically conductive outer structure **200** extends in a circular manner around the entire measuring device **100**, on the outer surface thereof. **FIG. 4B** illustrates the solution of **FIG. 4A** by showing the measuring device of **FIG. 4A** from above. The measuring device **100** may be entirely covered with the electrically conductive outer structure. However, the display **400**, for example, is not necessarily coated with the electrically conductive outer structure **200**, for example, although it is possible to produce a transparent layer made of an electrically conductive material (an Indium-Tin-Oxide, or ITO, layer) onto the display **400**.

[0030] Finally, with reference to **FIGS. 5 and 6** and to some of the subject matter already discussed, the manufacture of a measuring device and the measurement of heart rate with the device will be discussed. **FIG. 5** is a flow diagram illustrating a method for manufacturing the measuring device. In step **500** the electrically conductive inner structure is placed on the inner surface of the measuring device. In step **502** the electrically conductive outer structure is arranged to the measuring device in such a way that at least part of the structure is on opposite sides of the hand to which the device is attached. The electrically conductive outer structure and inner structure may be made of electrically conductive plastic or metal. The electrically conductive material may be provided as a coating on the outer and/or inner structure. In step **504** the measuring device is provided with signal processing means. In step **506** the electrically conductive outer structure and inner structure are connected to the signal processing means for heart rate measurement.